General specifications

1. A mandatory meeting will be held in SLC to discuss the counterpoise and building design. A site visit will be disused and scheduled during this meeting.
2. This contract is to design the most cost efficient structure that will meet all of FAA needs. This will include both design, specifications, build and install. With this in mind, contractor will be required to adapt design to all FAA requirements. The out come is to be a fully functional facility meeting fully all FAA requirements. These requirements will be given contractors at mandatory meeting in Salt Lake.
3. Contractor will be providing counterpoise, building and installation of building and counterpoise and all associated requirements.
4. Burley VOR site is approximately 5 miles north/west of Burley, Idaho on asphalt road with 1500 foot dirt access road.
5. Contractor to follow all Manufacture specifications.
6. Contractor to supply all material and labor for this project.
7. At end of project, site should be clean and free of all construction debris and surplus material. All waste and surplus material to be disposed of off site in accordance with all State, local and federal requirements.
8. Contractor must show evidence in bid package of at least 5 years as a licensed contractor.
9. Beside meeting the national NEC, contractor must meet FAA order 19e and 1217f electrical requirements. These requirement will be available at Site meeting and SLC meeting
10. At beginning of site construction FAA will be supplied with 2 sets of cad drawings and 5 sets of full size drawings and specifications. At CAI the FAA will be supplied 2 sets of CAD drawings and 5 sets of full size drawings and

specifications. At this time all CAD drawings, designs and any information pertaining to this contract becomes the property of the FAA, for the FAA's unrestricted use at other locations.

11. At no time shall there be any equipment, material, building or any other activities that have any proprietary restrictions.
12. There shall be 3 FAA reviews of drawings and specifications before construction beginns. At approximately 30%, 80% and 100%.
13. Contractor to provide rental of 10FT X 12FT storage building for exclusive use by FAA for 4 months/completion of building.
14. Contractor to supply crane to remove roof top dome and equipment and to reinstall on new structure.
15. Contractor to supply all terrain forklift or equal to move FAA equipment from old building to storage and back to new building.
16. United Electric will be moving the power Transformer to south of building under separate contract. Under this contract, the contractor is required to install all necessary 3 phase wiring from transformer to building.
17. All foundations to be 48 inches below ground level.
18. Soil has been distributed during excavation and removal of old building. Installation contractor to make sure all new excavation is placed on undisturbed soil.
19. Finial plot in side wood fence to be covered with 3 inches of ¾ inch crushed rock.

Building requirements:

1. Building must be at least 258 sq ft interior measurement, meet all NEC, FAA, national, and OSHA requirements for work space.
2. Be able to hold battery rack of 2ft X 8 ft measurement
3. Office table of 3ft X 4 ft with chair
4. 5 each equipment racks of 2ft X 30 inch measurement
5. Meet the national NEC, and FAA order 19e and 1217f electrical requirements.
6. Building shall be of pre-built, modular construction using concrete or steel. No fiberglass, wood or plastic.
7. Be rodent proof.
8. Interior height to be 9ft
9. Meet all the following requirements:

All locations of equipment to be determined by code requirements and reviewed by FAA during drawing review

200 AMP 3ph Main Service Disconnect in Breaker Panel

100 AMP rated 15 deg. Angle Ext. Hubble Generator Plug & Sleeve 5100R9W 4P 5W

200 AMP rated 24 – 30 Bolt in Breakers in accordance with 19E and 1217F with double hinge front

200 AMP rated Manual Transfer Switch Single Pull Double Throw

1ea. 2" conduit TELCO inlet

1ea. 2" conduit for Electrical Panel inlet

1ea. 2" conduit for 200 AMP 3ph. Manual Transfer Switch

2ea. 2" conduit for counter poise 500MCM ground at 45 deg. 2ea. 6 x 12 Multi Point Ground Plates with 500 MCM Ground with to EES per 19e

1ea. 6 x 12 Single Point Ground Plate tied to Multi Point Ground Plates per 19e

1ea. outside convenient outlet

1ea. outside Vent with motor, thermostactaly controlled

1ea. 2" Threaded Spindle

1ea. External Entrance Lamp

Wind Sheer of 120 mph

Steel Insulated Door Type II Rated with FAA required best lock , with lever action. also provide hydraulic door opener. Ads approved

Roof load up to 100 PSF

10 ea. single gang 120 volt convenient outlets

8ea. T48" Fluorescent Lamps

2 each Bard wall hung 36,000btu HVAC unites with 7KW heaters, 3 phase, equipped with lead/lag thermostat.

All interior surfaced to have ¾ inch architurural plywood approved by FAA RE

Roof connection for attachment to counterpoise as shown in drawing attachment "A"

1 each fendall pure flow 1000 eye wash with in 5 ft of batteries

See attachment "B".

All power connections to building to be per 1217F, 19E, NEC and local power company requirements. Conduit from power company transformer to building connection to be done by this contractor, wire by local power company.

4/0 bare EES shall be installed by this contractor per 19e requirements.

Provide 4ft X 4ft entry pad in front of door. Height placement to be determined by COTR.

Provide door entrance canopy with sealed drip edge as approved by RE

Counterpoise requirements:

1. Approximately 30 ft diameter with 16 equal sides or perfectly round. Counterpoise must cover all portions of building unless building is part of counterpoise. One flat side if not round must point to magnetic north
2. Building roof must be accessible for maintenance
3. Be certified to with stand 100 mile per hour wind by PE stamp/signature.
4. All connections/touching of metal to metal shall be welded 1 inch for ever 12 inches of metal to metal connection/touching.
5. Counterpoise top expanded metal or equal to support 250lb single person load with out permanent deflection or side movement.
6. All construction of counterpoise to meet Drawings and specifications available at SLC meeting

1. Back of building shall be oriented to magnetic north as shown in drawings.
2. Concrete specifications to be as follows:

Concrete and steel requirements:

If contractor does not want to meet any part of the following steel and concrete specifications, contractor must submit in writing reason for waiver and receive approval from FAA RE.

7. STRUCTURAL GENERAL NOTES

III. Concrete and Reinforcing

C1. All work and materials shall comply with all areas of AC1318 and ACI 347 Publications and applicable ASTM Publications.

C2. Compressive strength of concrete at 28 days shall be 4000 PSI.

C3. Hard rock aggregates shall conform to ASTM C-33. Their Maximum size shall be ¾ " except 1" shall be used for footings and slabs on grade.

C4. Admixtures

A. Concrete mix shall include fly ash as per ASTM C618 class "F" except that maximum loss on ignition shall be limited to 1% to yield specified quantities. Fly ash replacement of cement shall be limited to 20% by weight.

C5. The contractor shall submit mix designs and 3,7, and 28 days strength tests for review by the structural engineer before any

concrete is poured at the job site.

C6. All concrete that is placed by pumping shall be medium range-

Plasticized with water reducing admixture which shall comply

With specifications for chemical admixtures for concrete, ASTM

designation C-494 non-chloride and shall be used in strict accordance

with manufacturer's recommendations. Product specification

publication shall be submitted to structural engineer for review.

C7. Unless otherwise noted all reinforcement bars shall be securely

anchored to the forms and spaced from them as follows:

Minimum Coverage

A. Cast against & exposed to earth .....3 inches

B. Concrete exposed to earth or weather:
   #6 though #18 bars.....2 inches
   #5 bar and smaller.....1 ½ inches

C. Not exposed to weather or in contact with ground:
   slabs, walls, joists.....3/4 inches

C8. Reinforcing Steel

A. All reinforcing steel shall be bent, derailed and chaired
   as per the "ACI Manual of Standard Practice for
   Detailing Reinforcing Concrete Structures."

B. All reinforcing steel to be welded shall comply with ASTM A706.

C. All reinforcing steel shall be of new stock deformed bars
conforming to ASTM A-615 grade 60 unless otherwise noted.
Placement of bars in accordance with AVI 315 and ACI 318.
Use bar supports per ACI 315 chapter 7 for all rebar and
Welded wire fabric. As per ACI 318, Section 7.5.1: "All
reinforcement shall be accurately placed and adequately
supported before concrete is placed and shall be secure
against displacement within tolerances permitted in
7.5.2." Wet stabbing reinforcing is not allowed.

D. Unless otherwise indicated, all anchors welded to steel
plates or angles that are embedded in masonry or concrete
shall be deformed bar anchors conforming to A36 Steel or
ASTM A706.

E. Minimum standard rebar lap lengths: #3=19",#4=25" #5=31"
#6=37" #7=54" #8=62" #9=70" #10=78" #11=85"
Epoxy coated bar laps, multiply above values by 1.2.
For epoxy coated rebar's or wires with cover less than 3dbs or
clear spacing less that 6db, the laps shall multiply the

above values by 1.5.

F. All dowels shall have at least 38 bar diameter embedment.

G. Break out dowels may be used for convenience of contractor, however, dowels shall be Grade 40 and spacing of dowels shall be decreased by 1/3.

H. When called for on the drawings or when directed by Engineer bars that are to be epoxy doweled are to be put in holes larger than the bar diameter(1/4" larger for rebar and 1/8" larger for threaded bars). The holes shall be ten bar diameters deep for 4000 psi concrete or above and 15 bar diameters for concrete below 4000psi and masonry. Fill holes with :Hilti" Hi-Mod epoxy get (or equal as approved by engineer). All epoxy dowels and epoxy anchors are to be either threaded or deformed bars as per drawings. Apply epoxy as per manufacturer's recommendations. Mixing shall be done using a power mixer. For cold weather application gel shall be mixed at 70 degrees and kept at 40 degrees for 72 hours after application. Impact type drilling tools shall not be used for drilling holes or tightening anchors and shear bolt

nuts into or through brick. SPECIAL INSPECTION IS REQUIRED.

C9. Concrete tests shall be made by testing laboratory approved by the architect, with copies of all reports being mailed to the architect and the contractor. In general, one test shall be made for each 50 cubic yards of concrete, or each days' pour if less than 50 yards, or as directed by Architect. Each test shall consist of 5 cylinders of which one shall be tested at 7 days, 2 tested at 28 days, and two retained in reserve for later tests, if required. Specimens shall be made and tested in accordance with ASTM C172,C-31 and C-39 standards. Slump and Air entrainment test shall also be made with each set of cylinders taken. Contractor shall provide the cylinders. The testing laboratory shall transport all cylinders. The owner shall pay for all tests.

C10. Before concrete is poured, check with all trades to insure proper placement of all openings, sleeves, curbs, conduits, bolts, inserts, etc. relating to work.

C11. All exposed to view concrete shall be stoned smooth while green, or as directed by Architect. No grout plaster shall be permitted. Exposed to view concrete shall have ¾" deep "V" groove placed vertically at 8'-0" o.c. or as directed by Architect.

C12. Protect freshly place concrete from premature drying and excessive cold or hot

temperature as per ACI 318 and maintain without drying at a relatively constant
temperature for a period of time necessary for hydration of cement and
proper hardening.

C13. Cold weather curing and protection requirements for concrete shall conform to
the requirements of ADI 306 when depositing concrete at freezing temperature
or below, the concrete mix shall have a temperature of at least 50 degrees but not
more than 80 degrees. The concrete shall be maintained at a temperature of not
less than 50 degrees and in moist condition for not less than 7 days after placing
or as directed by the structural engineer. The use of chemicals or additives to
prevent freezing will not be permitted. Contractor shall prevent frost from
penetrating under footings or interior slabs on grade or postpone concrete pour.
Refer also to specifications and to any directive by structural engineer for
additional cold weather requirements.

C14. Architect/Engineer shall be notified 48 hours prior to pouring any concrete in
order to observe reinforcing placement.

C15. All concrete shall be properly vibrated in place using internal vibrating rods.

C16. Unless otherwise noted all concrete slabs apply a liquid type membrane forming
curing compound complying with ASTM C309, type 1 class A. Moisture loss
shall be not more than 0.055 gr./sq. cm. applied at 200 sq. ft./gal. When

temperature is 75 degrees or more during placement do not use membrane but moist cure slab for 7 days continuous minimum or see ACI Committee 305 Report "Hot Weather Concreting". Submit method of curing for approval.

V. Structural Steel

S1. All structural steel work shall comply with the latest edition of the AISC "Standard Specifications for the Design Fabrication and Erection of Structural Steel for Buildings", and "Code of Standard Practice". ASTM A-992 FY=50 ksi minimum specified for structural shapes. A36 steel for miscellaneous steel and ASTM A-500 grade B for structural tubes, typical U>N>O> Cambering shall meet the standard mill practice shown on AISC "Manual of Steel Construction".

S2. Shop paint and remove all rust, oils, mill scale. Apply one coat zinc chromate 2 dry mill thick, Provide touch up field coat at all abraded and welded areas, two dry mills thick. All steel exposed to moisture conditions shall be galvanized. (Follow SSPC – Paint 20; ASTM A 780).

S3. Unless noted otherwise, all structural steel to steel bolted connections shall use ¾" diameter high strength bolts conforming to AST< A-325 (N) and shall have carbonized washers under the turning unit. All other bolts shall conform to ASTM A-307. A- 325

bolts are to tightened by either turn of the nut method or load indicator washers. All

A-325 bolt tightening shall be supervised by an independent testing agency who shall

certify in writing that all bolts are properly tightened.

S4. Welding

A. All welding to be made by certified welders using E-70 series electrodes.

(for all welding of ASTM A-572 steel, E70X8 electrodes shall be used and

welding shall be as per AWS D1.1"Structural Welding Code".)

B . All welders to be currently certified for all types of welds on this project

under latest AWS D1.1, Structural Welding Code. Welders to have passed

the Qualification Requirements within preceding 6 month period.

C. Welds made against concrete are to be done under the supervision of an

approved testing agency and that fillet welds should be made in 1/8" passes

2" long at 4" o.c.

D. All steel to steel connections not shown bolted which is continuous, shall be

welded to develop full strength capacity of connecting members.

E. Minimum size of fillet weld (unless noted otherwise on drawings):

Material thickness of Thicker part joined	Minimum size of of fillet weld
To ¼" inclusive	1/8" all around
Over ¼" to ½"	3/16" all around
Over ½" to ¾"	¼" all around
Over ¾" to 1 ½"	5/16" all around

F. Unless otherwise noted, all structural steel to steel connections shall be made in such a manner to develop full shear capacity of connecting members as per AISB specifications.

G. Field paint all abraded and welded surfaces for joist and metal deck. Use SSPC- Paint 20 (Galvanic).

H. Unless otherwise indicated, all anchors welded to steel plates or angles that are embedded in masonry or concrete shall be deformed bar anchors conforming to A36 Steel or ASTM A706.

I. 10% of all shop and field welds shall be done under the direct supervision of an independent testing agency approved by the architect and tested by magnetic particle procedures.

J. Copies of all tests are to be sent to structural engineer. Welds found to be defective shall be corrected at no extra cost to the owner.

K. All weld testing shall be paid for by the contractor.

VII. General Conditions

G1. If discrepancies exist between specifications, general notes and drawings, call the Engineer(801-575-8223) to resolve the conflict or use the expensive option.

G2. All dimensions on structural drawing shall be checked and verified against existing conditions. All dimensions relating to existing site, building, installations or

construction shall be field verified, all discrepancies shall be submitted to the structural engineer. Do not proceed with fabrication and erection of materials affected until discrepancies are resolved.

G3. All omissions or discrepancies in the working drawings and or specifications shall be brought to the attention of the Structural Engineer before proceeding with any work involved.

G4. Shoring

A. Until all permanent members, including walls, slabs, floors and roof are in place and all connections are completed, stability of structure and all parts thereof shall be contractor's responsibility. During construction contractor shall keep construction loads within the design load limits shown on drawings. After construction is completed building owner shall keep loads on roof and floor within design limits shown on drawings.

B. Contractor shall provide shoring design calculations and drawings stamped by a Utah Registered Professional Engineer.

G5. All Construction shall be in accordance with the IBC 2006 and supplements unless a higher standard is called for.

G6. Unless a more stringent requirement is specified, design all members with minimum Live Load deflection of L/360.

G7. Contractor shall be responsible for safety and protection in and around job sire and

or adjacent properties.

G9. Contractor shall provide 5 sets of shop drawings for review by structural engineer for;

all reinforcing bars, structural steel, glu-lam beams, wood joist, clock tower and all

prefab, structural items(including structural calculations) and shall also be approved

by the governing authority prior to installation. See Section 1106.3.4.2.

G10. The appearance of all exposed structural elements shall be approved by owner.

All blemishes, dents, or shipping damage in structural elements that are exposed to

view shall be repaired before erection and shall be approved by the architect. All

sweeps in beams joists, and girders greater than ½" shall be corrected. Repairs

shall be made at no cost to the owner. For tolerances in wide flange shapes, follow

AISB specifications.